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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,766	09/17/2003	Tadashi Sasaki	P/1250-259	7983

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OSTROLENK FABER GERB & SOFFEN
1180 AVENUE OF THE AMERICAS
NEW YORK, NY 100368403

EXAMINER

ARANCIBIA, MAUREEN GRAMAGLIA

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 12/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/666,766

Applicant(s)

SASAKI ET AL.

Examiner

Maureen G. Arancibia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Upon further examination, the Examiner has concluded that the disclosed first and second "Preferred Embodiments" do not constitute patentably distinct species. **The election of species requirement mailed 8 September 2005 is withdrawn.** Claims 1-20 will be examined on the merits.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-5, 8, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0051644 to Sugimoto et al. in view of U.S. Patent 6,079,693 to Ettinger et al.**

In regards to Claim 1, Sugimoto et al. teaches a substrate processing apparatus (Figure 9) that removes an organic matter from a substrate W with use of a removal liquid (Paragraph 13), comprising: a process chamber 1051 directed to an organic matter removal process; a holding element 1067 to hold a substrate in the process chamber (Figure 10); a removal liquid supply element 1075 to supply said removal liquid to said substrate; and a shutter 1059 disposed in a transport area for said substrate that extends from a cassette C to said process chamber, said cassette housing said substrate W.

The cassette C holds the substrates arranged in a stack with gaps (Paragraph 108), and would therefore inherently allow at least partially for the transmission of light through said gaps. This rejection is based on the fact the apparatus structure taught above has the inherent capability of being used in the manner intended by the Applicant. When a rejection is based on inherency, a rejection under 35 U.S.C. 102 or U.S.C. 103 is appropriate. (See *In re Fitzgerald* 205 USPQ 594 or MPEP 2112).

In regards to Claim 3, Sugimoto et al. teaches a plurality of shutters 1059 arranged in a plurality of locations in said transport area (at the entrances to various processing chambers 1051; Figure 9). The clearance between said plurality of shutters is greater than the size of the substrate in the direction of transport, to allow the substrate to pass between the processing chambers 1051. (Figure 9)

In regards to Claims 1 and 3, Sugimoto et al. does not expressly teach that the shutters 1059 are made of a light-blocking material to allow them to block light.

Ettinger et al. teaches that the plates 36A, 36B of a shutter (Figure 2) should be made of aluminum or stainless steel. (Column 8, Lines 26-30)

It would have been obvious to one of ordinary skill in the art to modify the apparatus taught by Sugimoto et al. to form all of the shutters of aluminum or stainless steel, as taught by Ettinger et al. The motivation for making such a modification, as taught by Ettinger et al. (Column 8, Lines 26-30), would have been to form the shutters of exemplary chemical-resistant material.

The solid metal shutters taught by the combination of Sugimoto et al. and Ettinger et al. would inherently be capable of blocking light from passing through when

the shutters were in a closed position. This rejection is based on the fact the apparatus structure taught above has the inherent capability of being used in the manner intended by the Applicant. When a rejection is based on inherency, a rejection under 35 U.S.C. 102 or U.S.C. 103 is appropriate. (See *In re Fitzgerald* 205 USPQ 594 or MPEP 2112).

In regards to Claim 2, the wall 1065 provided with shutter 1059 forms an optically closed area enclosing the process chamber 1051.

The solid metal shutter taught by the combination of Sugimoto et al. and Ettinger et al. would inherently block light passing through said transport area into the chamber. This rejection is based on the fact the apparatus structure taught above has the inherent capability of being used in the manner intended by the Applicant. When a rejection is based on inherency, a rejection under 35 U.S.C. 102 or U.S.C. 103 is appropriate. (See *In re Fitzgerald* 205 USPQ 594 or MPEP 2112).

In regards to Claim 4, see the discussion of Claim 3.

In regards to Claim 5, the shutters 1059 are disposed in a transfer opening of each process chamber 1051. The shutters taught by the combination of Sugimoto et al. and Ettinger et al. would inherently block light passing through the transfer opening into the process chamber when in a closed position. This rejection is based on the fact the apparatus structure taught above has the inherent capability of being used in the manner intended by the Applicant. When a rejection is based on inherency, a rejection under 35 U.S.C. 102 or U.S.C. 103 is appropriate. (See *In re Fitzgerald* 205 USPQ 594 or MPEP 2112).

In regards to Claim 8, the elements 1059 are openable shutters. (ex. Paragraph 157)

In regards to Claims 19 and 20, the substrate processing apparatus taught by Sugimoto et al. can be used to remove an organic polymer caused by the transformation of a resist and formed by performing dry etching of a thin film on the substrate with use of the resist as a mask. (Paragraphs 7 and 8)

4. Claims 6, 7, and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugimoto et al. in view of Ettinger et al. as applied to claims 1 and 3 above, and further in view of U.S. Patent 6,009,890 to Kaneko et al.

The teachings of Sugimoto et al. and Ettinger et al. were discussed above.

In regards to Claims 6, 7, 9, and 13, Sugimoto et al. additionally teaches a second process chamber 1091 directed to a different process, and a substrate transport mechanism in a relay section (substrate transporting mechanisms 1053, 1093 and delivery stand 1071) to transport said substrate between the different process chambers. Note that the combination of Sugimoto et al. and Ettinger et al. teaches an inherently light-blocking shutter at the opening of each process chamber, as discussed above.

The combination of Sugimoto et al. and Ettinger et al. does not expressly teach an indexer section, a first gate section between the indexer section and the relay section, a second gate section between the relay section and an optically closed process section enclosing the process chambers, or first and second light blocking sections in the first and second gate sections.

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Kaneko et al. teaches a processing apparatus (Figure 25) comprising an indexer section 2, a relay section 4, and a process section 3, with a first shuttered gate section 102 between the indexer section and the relay section, and a second shuttered gate section 103 between the relay section and the closed process section enclosing process chambers 51, 52.

It would have been obvious to one of ordinary skill in the art to modify the combination of Sugimoto et al. and Ettinger et al. to include an indexer section, a first gate section between the indexer section and the relay section, a second gate section between the relay section and a closed process section enclosing the process chambers, and first and second shutters in the first and second gate sections. The motivation for making these modifications, as taught by Kaneko et al. (Column 16, Lines 3-25), would have been to allow an open type carrier having no lid to be used to transport multiple substrates. In other words, providing the gated sections would protect the substrates from any process proceeding in any other section. This benefit would also apply even if only one substrate were transferred at a time.

It also would have been obvious to form *all* of the shutters of aluminum or stainless steel, as discussed above to be taught by Ettinger et al. (Column 8, Lines 26-30) The motivation for making such a modification, as taught by Ettinger et al. (Column 8, Lines 26-30), would have been to form the shutters of exemplary chemical-resistant material.

The solid metal shutters taught by the combination of Sugimoto et al., Ettinger et al., and Kaneko et al. would inherently be capable of blocking light from passing through

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each section when the shutters were in a closed position. This rejection is based on the fact the apparatus structure taught above has the inherent capability of being used in the manner intended by the Applicant. When a rejection is based on inherency, a rejection under 35 U.S.C. 102 or U.S.C. 103 is appropriate. (See *In re Fitzgerald* 205 USPQ 594 or MPEP 2112).

In regards to Claim 10, see the discussion of Claim 1 above.

In regards to Claim 11, see the discussion of Claim 6.

In regards to Claim 12, Sugimoto et al. teaches that the second process chamber 1091 performs a drying process on a substrate after it is subjected to organic matter removal in process chamber 1051. (Paragraphs 157 and 159)

In regards to Claim 14, the shutters 1059 taught by Sugimoto et al. are individually controlled openable shutters, and would be capable of being so controlled as not to open concurrently. (Paragraph 157) Moreover, Kaneko et al. teaches that only one shutter should be opened at a time. (Column 16, Lines 3-26)

This rejection is based on the fact the apparatus structure taught above has the inherent capability of being used in the manner intended by the Applicant. When a rejection is based on inherency, a rejection under 35 U.S.C. 102 or U.S.C. 103 is appropriate. (See *In re Fitzgerald* 205 USPQ 594 or MPEP 2112).

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugimoto et al. in view of Ettinger et al. as applied to claim 1 above, and further in view of U.S. Patent 6,403,925 to Johnsgard et al.

The teachings of Sugimoto et al. and Ettinger et al. were discussed above.

The combination of Sugimoto et al. and Ettinger et al. does not expressly teach a viewing window for viewing the inside of the process chamber.

Johnsgard et al. teaches a viewing window 505 in chamber wall 502. (Figure 5)

It would have been obvious to one of ordinary skill in the art to modify the combination of Sugimoto et al. and Ettinger et al. to provide a viewing window in the process chamber. The motivation for doing so, as taught by Johnsgard et al. (Column 9, Lines 59-65), would have been to allow the substrate to be processed to be viewed *in situ*.

6. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugimoto et al. in view of Ettinger et al., and further in view of Johnsgard et al. as applied to Claim 15 above, and further in view of U.S. Patent 6,866,745 to Kim.

The teachings of Sugimoto et al., Ettinger et al., and Johnsgard et al. were discussed above.

In regards to Claims 16 and 17, the combination of Sugimoto et al., Ettinger et al., and Johnsgard et al. discussed above does not expressly teach an illumination element or a window-open prohibiting element.

Kim teaches that an illumination element 230 can be provided in a chamber with a viewing window (in chamber wall hollow 206a), as broadly recited in Claim 16. (Figure 3A)

Johnsgard et al. teaches that the viewing window 505 can be provided with a window-open prohibiting element (*a nontransmissive plate*; Column 9, Lines 65-67).

It would have been obvious to one of ordinary skill in the art to modify the combination of Sugimoto et al., Ettinger et al., and Johnsgard et al., to include an illumination element and a window-open prohibiting element. The motivation for including an illumination element, as taught by Kim (Column 8, Lines 4-5), would have been to light up the inside of the chamber. The motivation for including a window-open prohibiting element, as taught by Johnsgard et al. (Column 9, Lines 65-67), would have been to allow the window to be covered for improved insulation.

The illumination element taught by the combination of Sugimoto et al., Ettinger et al., Johnsgard et al., and Kim would be inherently capable of being switched on when the window was open and off when the window was closed, simply by turning the light on and off. Likewise, the window-open prohibiting element would be inherently capable of prohibiting the opening of the window during processing, simply by being in its closed position. This rejection is based on the fact the apparatus structure taught above has the inherent capability of being used in the manner intended by the Applicant. When a rejection is based on inherency, a rejection under 35 U.S.C. 102 or U.S.C. 103 is appropriate. (See *In re Fitzgerald* 205 USPQ 594 or MPEP 2112).

In regards to Claim 18, Sugimoto et al. teaches that the removal liquid supply element 1075 is controlled by a valve 1077. Said valve would be capable of being actuated to prohibit supply of the removal liquid at least during a period of time that the viewing window was open, based on a signal from controller 1000. This rejection is based on the fact the apparatus structure taught above has the inherent capability of being used in the manner intended by the Applicant. When a rejection is based on

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inherency, a rejection under 35 U.S.C. 102 or U.S.C. 103 is appropriate. (See *In re Fitzgerald* 205 USPQ 594 or MPEP 2112).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maureen G. Arancibia whose telephone number is (571) 272-1219. The examiner can normally be reached on core hours of 10-5, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Maureen G. Arancibia
Patent Examiner
Art Unit 1763



Parviz Hassanzadeh
Supervisory Patent Examiner
Art Unit 1763